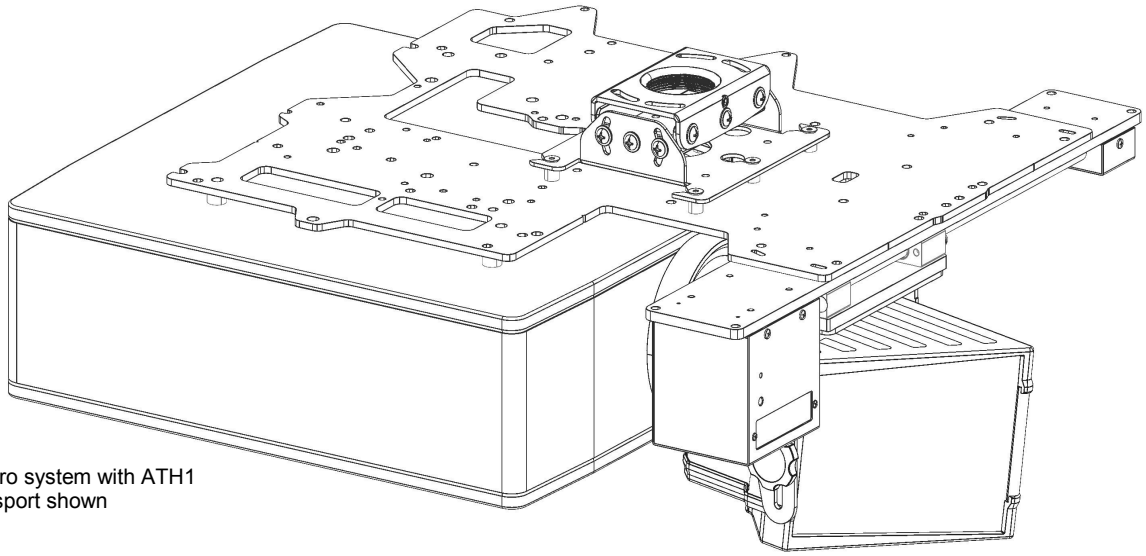

AKPro system with ATH1 transport shown

Panamorph Model UH480

Professional Grade Home Cinema Conversion Lens System

USER MANUAL AND INSTALLATION GUIDE

Including MTH1 and ATH1 Transports and AK7-AK8Pro Projector Attachment Kits

As of Feb 1, 2011

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INTRODUCTION

Thank you for purchasing the Panamorph UH480 lens system – the world's leading model anamorphic lens system designed to dramatically enhance today's high performance 16:9 projectors when showing the true widescreen aspect ratio of most major motion pictures.

The UH480 lens system includes the UH480 Lens and MTH1 manual transport (or optionally the ATH1 automated transport upgrade) to provide the optimum performance when viewing all widescreen content. The MTH1 and ATH1 transports can be mounted to your ceiling, to an improvised ceiling structure, or to a pre-engineered AKPro Panamorph Attachment Kit (AK) sold separately. However, due to the very simple Plug-and-Play procedure they offer, use of these kits will be the focus of this installation guide.

UH480 BASIC PROJECTION PARAMETERS

Throw Distance (distance from projector lens to screen)

This distance should be between 12 and 21 feet (3.6M and 6.5M) with the standard UH480 lens with an ideal range of 14.5 to 17.5 feet (4.4M to 5.3M) for the highest pixel level clarity, especially for video applications at 1080 resolution. If your projection system involves a significantly higher throw distance then we recommend purchasing an optional correction element (see www.panamorph.com) if you need graphic level performance.

Throw Ratio (ratio of throw distance to 16:9 native image width)

This ratio primarily affects image distortion. To minimize the amount that the image edges bow inward a throw ratio of at least 1.6 is recommended.

If some distortion is acceptable, the large aperture of the UH480 will generally work with a throw ratio as low as 1.3 as long as the beam passes through the lens unobstructed. Due to increased distortion and the potential of non-uniform image brightness (hot spotting) at very low throw ratios, you may wish to consider a curved screen in such cases to help compensate for these artifacts.

Image/Lens Shift

Using horizontal lens/image shift other than for fine adjustments is not recommended due to keystoning which can be amplified by the UH480. Vertical lens shift does not impact the use of the UH480. However, note that with vertical lens shift the UH480 should be tilted to face the approximate center of the screen to make any residual pincushion distortion symmetric at the top and bottom of the image.

A NOTE ON YOUR SCREEN FORMAT

The UH480 system works very well with a 2.35:1 aspect ratio screen. However, if you are considering a new screen we actually recommend an aspect ratio of 2.40:1 for the best all around fit. The 2.35:1 aspect ratio is somewhat of a film industry designation for many aspect ratios *around* 2.35:1 and may include many titles up to 2.40:1 and occasionally higher. Consequently, by following these installation instructions we will help you optimize your constant height imaging performance for all three primary aspect ratios of 16:9, 1.85:1 and the general range of 2.35:1-2.40:1.

USING AKPro ATTACHMENT KITS

The AKPro includes a high performance, rigid, solid steel plate specifically designed to attach to a properly installed model RPA ceiling mount head made by Chief Manufacturing. This may then be further installed to the ceiling using a variety of Chief components, or the RPA Kit offered through Panamorph. Panamorph RPA Kit used with both our Automated and Manual Systems includes following Chief Manufacturing components: 1-RPA000 Mount, 1-CMS115 ceiling plate, and 1-CMS003 3" extension pole.

The AK8L system mounts all the components on a common platform that does not generally require additional support. There are, however, certain larger projectors where the use of supporting chains will be required (these will be noted in the Projector Compatibility List on page 5 and "ALTERNATE AK8 ATTACHMENT METHOD" on Page 6). **The RPA and associated hardware must be installed to ceiling structural members to support at least 250 pounds and must be extremely rigid. Any play in the RPA mount will result in a rocking of the AK8L assembly as the lens moves in and out of the projector beam and represents a danger to equipment and personnel.**

IMPORTANT CEILING MOUNT LOCATION CONSIDERATIONS

(If your Projector Requires the Alternate Attachment Method with Support Chains Please Disregard this Step)

For optimum imaging results consult your projector's instructions for the ceiling mount location to place the projector's lens in the horizontal center (i.e. left to right) of your projection screen (even if your projector has a horizontal lens/image shift capability). In addition, make sure you are not at the limits of your projector's zoom capability so that you have some range for image adjustments.

The AKPro attachment plates are designed so that the projectors and other attached components form an average center of mass (gravity) approximately located at the center of the ceiling mount pipe. Therefore, **the ideal ceiling mount location will be shifted by the AKPro 2" (50mm) toward the left side of the screen** from the ceiling mount location indicated by your projector's instructions. If the plate is to be inverted (as directed in the Plate Diagram document) this shift will be to the right side of the screen.

If your projector ceiling mount is already installed and you do not wish to move it (or similarly move the screen in the opposite direction) due to a shift by the AKPro system, then you can make fine horizontal shift adjustments to your projector (if available) combined with turning the projector (only as necessary) during final setup to compensate for the shift. Some small amount of image distortion (horizontal keystoning) may result but in most cases this will not be noticeable since the image edges will typically be masked by the screen borders.

WARNING!

Use extreme caution and appropriate hardware when installing heavy objects to a ceiling. Periodically check all fasteners and connection hardware to be sure they are not coming loose. Improper installation may lead to an increased risk of your equipment becoming unstable and possibly injuring someone.

USING THE ATTACHMENT PLATE DIAGRAM DOCUMENT

For plate illustrations and attachment instructions please refer to the document “AK7-AK8Pro Plate Diagrams”. Locate your projector model in the compatibility chart for hardware and special instructions. Please note that there are 5 different models of plates: AK8-DR, AK8-3D, AK8S, AK8L and AK7.

CONNECTING THE AKPro ATTACHMENT PLATE

(Chief RPA mount and Phillips screwdrivers required)

1. Position the projector bottom-up. Consult the Plate Diagrams document for plate orientation, hole positions, and required screws and spacers for your projector model. Insert and tighten each screw through an appropriate silver washer and lock washer, the designated holes in the Attachment Plate, then through any required spacers and finally into the projector ceiling mount holes.

2. Using the included gold hex key, install the six 7/8” socket head screws each through a 3/8” aluminum spacer and into the six threaded holes from the ceiling side of the attachment plate. Thread only enough to extend the screw to the bottom of the plate.

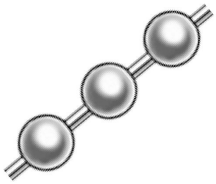
3. Insure that the RPA mount head is secure (see instructions included with the RPA mount) and oriented properly relative to the 7/8” socket head screw heads so that the mounted projector will face the screen. Use two people to lift and position the projection assembly so that the heads of each of the 7/8” socket head screws rest within the matching final location of the RPA mount head. At this point the silver 3/8” spacers should be between the Attachment Plate and the RPA mount head. The projection assembly may be lowered to allow the 7/8” screw heads to rest on the RPA mount. However, a first person should continue to guide the projection assembly while and a second person uses the gold assembly wrench to tighten the 7/8” screws. When tightening these screws, do so in a pattern of incrementally driving each screw a little more into the attachment plate so that at any time the projection assembly is resting on as many screw heads as possible until all are tightened.

If the lens must be removed for any length of time it is recommended that a similar weight be suspended from the front of the attachment kit to balance the weight of the projector. This will minimize unusual stresses on the ceiling mount system.

ALTERNATE AKPro ATTACHMENT PLATE METHOD

For Larger Projectors Requiring Support Chains (See Attachment Plate Diagram Document)
(Phillips screwdrivers, pliers, scissors and appropriate ceiling hooks required)

Plate Hook Bag Contents (AK6 only)



3/16" Chain (6 feet)

Chain End (4)

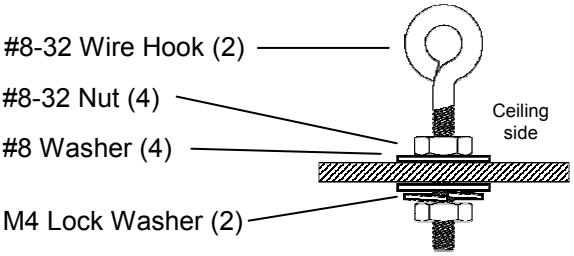
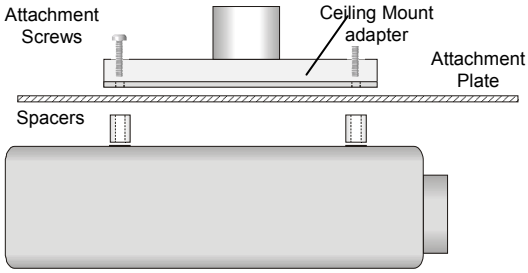


Plate Hook
as assembled to
Attachment Plate



1. Install the Plate Hook Assemblies in the two "H" holes of the Attachment Plate (see diagram) with the hook ends on the ceiling side as shown above. Use pliers to bend the closed hooks apart just enough to install a Chain End (See Step 5).

2. Position the projector bottom-up. Consult the Plate Diagram document for plate orientation, hole positions, and required screws and spacers for your projector model. Insert and tighten the required screws through the ceiling mount adapter (not included), then through the designated holes of the Attachment Plate, and then through any required spacers and finally into the projector ceiling mount holes. **If the screws in the kit are not long enough, procure the longest metric screws you can for the safest installation.**

3. Securely connect the projector assembly to the ceiling mount and then adjust the projector and ceiling mount to center the projector's image in the horizontal center of your screen.

4. Install ceiling hooks (not supplied) into the ceiling directly above the Plate Hooks. **The ceiling hooks should be small enough to accept a Chain End but strong enough when installed to each support 40 pounds or more.**

5. Attach a Chain End to the Chain and then connect to one of the ceiling hooks. Cut the Chain and assemble to another Chain End for a best fit to the corresponding Plate Hook and attach. Repeat for the other set of hooks.

6. Adjust and tighten the nuts on the Plate Hook Assemblies to make the Chains tight but without raising the front of the Attachment Plate. You may wish to turn the projector on to ensure the image remains properly oriented to the screen during this step. At this point proceed to the appropriate lens/transport mounting step.

MOUNTING THE MTH1 TRANSPORT

Installing without AKPro attachment kits. The MTH1 may be mounted directly to ceiling structures without using the AK attachment kits. Two black #10x1¼" long mounting screws are included with the MTH1 for mounting through the centers of the two ceiling mount slots in the MTH1 body. These centers should correspond to two mounting points in a secure platform in front of your projector so that the UH480 can be properly positioned in front of and as close to the projector lens as possible without mechanically interfering with the projector or its ventilation in either "lens in" or "lens out" positions. However, the optical design of the UH480 is very forgiving, so minor deviations in this positioning or any moderate warming around a projector vent will have no impact on image quality. In addition, note that in a ceiling mounted system, the center of your projector beam will exit the projector lens below center. **The UH480 will ultimately be aligned with the beam itself and not the projector lens.** As a result, you should expect the UH480 to be centered below the projector lens and, ultimately, tilted slightly downward. Before finally tightening the mounting screws, refer to the "Final Adjustments" step below.

1. Remove the UH480 Lens from its Lens Bracket by removing the two Lens Knobs. Securely attach the UH480 Lens Bracket to the MTH1 shuttles using the eight M3x6mm brass screws and black washers included in the MTH1 kit. The Lens Bracket should be oriented so that its central threaded hole is aligned with the long slot in the body of the MTH1.

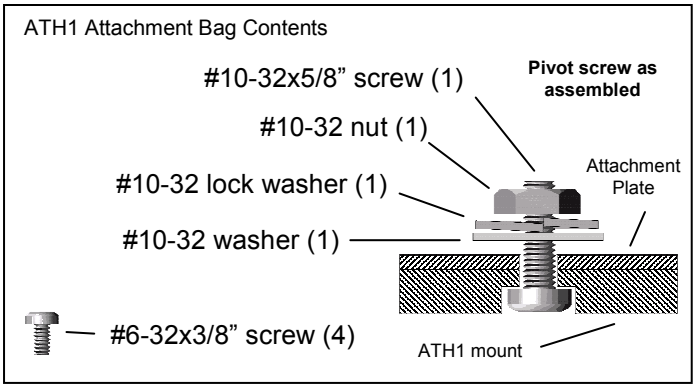
2. If using an AK attachment kit, position the MTH1 to the bottom of the installed AK Attachment Plate so that the detailed side (front) of the MTH1 body is facing the projection screen. Insert each of the four M3x16mm Phillips screws through a lock washer and flat washer from the MTH1 kit, through the four "M" slots in the Attachment Plate and into the corresponding holes in the MTH1 body. Tighten only to the point that the MTH1 is against the Attachment Plate but is still relatively free to be oriented or "pivoted" in the "M" slots.

3. The UH480 Lens may include a logo plate in a pouch attached to the side of its box. Use the wrench included to attach the logo plate to the lens. It does not matter which side of the Lens housing is up or down. Now carefully install the Lens into the Lens Bracket using the two Lens Knobs. Proceed to "Final Adjustments" step below.

MOUNTING THE ATH1 TRANSPORT

1. DO **NOT** CONNECT POWER TO THE TRANSPORT AT THIS TIME.

2. Position the flat side of the motorized transport against the bottom of the Attachment Plate so that the transport logo is toward the screen and the center "C" hole in the Attachment Plate is aligned with the front recessed transport hole. Insert the #10-32 pivot screw up through the transport and Attachment Plate and loosely complete the assembly with the corresponding washer, lock washer and nut. Now loosely insert the four #6-32 3/8" screws through the four "M" slots in the top of the Attachment Plate and down into the transport.



3. Refer to the ATH1 user manual (included with ATH1) for additional instructions to install the lens at this time, but do not forget to complete the "Final Adjustments" step below.

FINAL ADJUSTMENTS (ALL INSTALLATIONS)

1. Turn the projector on with the UH480 Lens out of the projector beam. Set the horizontal lens shift to neutral (if a feature of your projector) and then adjust the ceiling mount so that the 16:9 image is in the exact center of and square to the screen, with a similar amount of image slightly over the top and bottom screen borders. If the projector lens is not in the exact horizontal center of the screen you may need to use a little horizontal lens shift for this purpose.

2. Bring the UH480 Lens into the beam. Adjust the vertical position and tilt of the Lens so that the projector beam is passing through the center of the Lens and so any residual pincushion distortion is about the same at the top and bottom of the image. This will typically result in the UH480 Lens being below the center of the projector lens and tilted slightly downward. Tighten the knobs.

3. Adjust the rotation of either the ATH or MTH1 transport so that the left and right sides of the image are an equal distance from their respective screen borders. Now tighten the Pivot Screw (ATH) and also the four remaining screws holding the transport to the Attachment Plate.

4. For optimum multiple aspect ratio performance, adjust the projector's zoom so that a 1.85:1 aspect ratio movie (Panamorph "out") is just masked by the top and bottom of the screen border. This way 1.85:1, 16:9 and 2.35-2.4:1 aspect ratio movies should all be presented to fill the screen at a constant height.

CLEANING

In most applications lenses do not need very much cleaning – a bit of dust will not impact image clarity. However, in today's high performance home cinemas with very dark rooms a small build-up of dust or other foreign matter on your projector lens or your Panamorph lens can produce a measurable reduction in contrast. The most effective cleaning approach is to simply blow off any dust. If there is any residue or build-up then it is recommended that you clean the optics with professional lens cleaning supplies such as from a camera store while the lens is in front of the lit beam of the projector. This will allow you to quickly see both the results of cleaning and also if you are causing any damage.

LIMITED WARRANTY

Panamorph, Inc. warrants this product to be free of defects in original workmanship and material for a period of eighteen months from the date of manufacture listed on or inside its shipping container. During this period, a defective unit may be repaired or replaced, at the discretion of Panamorph, Inc., by returning it in its original packaging with a copy of your receipt. This warranty does not cover damage resultant from lack of prudent care, accident or misuse (including the use of motor systems with lenses or other products in ways not intended), or any cosmetic damage not reported within 15 days of purchase. Damages are limited to the cost of the product. A service charge may be applied to any returned product requiring cosmetic attention, or to the repair of any damage not covered under this warranty.

This warranty is non-transferrable and applies only to products and/or components purchased by original end users through authorized Panamorph channels operating in compliance with Panamorph policies, terms and conditions.

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